AMENDMENT TO THE CLAIMS

The following listing of claims will replace all previous listings:

Listing of Claims

1. (Original) A method for detecting an abused sensor adapted for determining a concentration of a medically significant component of a biological fluid, comprising the steps of:

    a) applying a signal having an AC component to the sensor;

    b) measuring an AC response to the signal; and

    c) using the AC response to determine if the sensor is abused.

2. (Original) The method of claim 1, wherein steps (a), (b) and (c) are performed before application of the biological fluid to the sensor.

3. (Original) The method of claim 1, wherein the AC response comprises an admittance.

4. (Original) The method of claim 1, wherein the signal is an AC signal.

5. (Currently amended) The method of claim 1, wherein the AC response comprises ~~magnitude~~ phase angle information.

6. (Original) The method of claim 1, wherein the AC component of the signal has a frequency not less than 1 Hz and not greater than 20kHz.

7.   (Original) The method of claim 1, wherein the biological fluid is blood.

8.   (Original) A method for detecting an abused sensor for determining a concentration of a medically significant component of a biological fluid placed upon the sensor, comprising the steps of:

a)   placing the biological fluid sample upon the sensor;

b)   applying a first signal to the biological fluid;

c)   measuring a current response to the first signal;

d)   repeating step (c) at least once;

e)   calculating a normalized Cottrell Failsafe Ratio using the current response data;

f)   applying a second signal having an AC component to the biological fluid;

g)   measuring an AC response to the second signal; and

h)   combining the normalized Cottrell Failsafe Ratio and the AC response to produce an indication of whether the sensor has been abused.

9.   (Original) The method of claim 8, wherein the second signal is an AC signal.

10.   (Original) The method of claim 8, wherein the first signal and the second signal are applied at least partially simultaneously.

11.   (Original) The method of claim 8, wherein the AC response comprises admittance magnitude and phase angle information.

12.   (Original) The method of claim 8, wherein the AC response comprises admittance phase angle information.

13.   (Original) The method of claim 8, wherein the second signal comprises a number of frequencies, wherein the number is greater than one.

14.   (Original) The method of claim 13, wherein the number is not less than two and not greater than five.

15.   (Original) The method of claim 13, wherein the number is not less than two and not greater than ten.

16.   (Original) The method of claim 13, wherein the number is greater than ten.

17.   (Original) The method of claim 8, wherein the AC component of the signal has a frequency not less than 1 Hz and not greater than 20kHz.

18.   (Original) The method of claim 8, wherein step (h) comprises calculating a FAILSAFE number as follows:

$$\text{FAILSAFE} = 1000 \times \arctan[\text{NCFR}/(\text{fs}_0 + \text{fs}_1(\Phi_1 - \Phi_2))]$$

where   1000 = scaling factor

NCFR = normalized Cottrell Failsafe Ratio

fs_0 = constant

fs_1 = constant

Φ_1 = phase angle at a first frequency

Φ_2 = phase angle at a second frequency;

wherein a value of FAILSAFE below zero indicates an abused sensor and a value of FAILSAFE above zero indicates a non-abused sensor.

19.   (Original) A method of determining a failure condition indicating an abused sensor in a blood glucose concentration test, comprising the steps of:

a)   applying a first test signal having an AC component to a test sample;

b)   measuring a first phase angle response to the first test signal;

c)   applying a second test signal having an AC component to the test sample;

d)   measuring a second phase angle response to the second test signal; and

e)   determining a failure condition value based upon the first phase angle response the second phase angle response and a predetermined Cottrell Failsafe Ratio.

20. (Original) The method of claim 19, wherein step (e) is performed based at least in part upon evaluating:

$$\text{arctan} [CFR / (fs_0 + fs_1(\Phi_A - \Phi_B)]$$

where

$CFR =$ Cottrell Failsafe Ratio

$fs_0 =$ a constant

$fs_1 =$ a constant

$\Phi_A =$ first phase angle response

$\Phi_B =$ second phase angle response.

21. (Original) The method of claim 19, further comprising the steps of:

f)   applying a test signal to the test sample;

g)   measuring at least two current responses; and

h)   determining the predetermined Cottrell Failsafe Raito based upon the sum of the current responses and a final current response.